

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space; and
painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein a parameterization of the object is discontinuous creating texture seams.
2. (previously presented) A method as recited in claim 1, wherein the painting is performed and the distortion is minimized independently of view.
3. (previously presented) A method as recited in claim 1, wherein the painting first aligns the brush to a normal vector of the surface.
4. (previously presented) A method as recited in claim 1, wherein the painting is performed without first painting the brush on a two dimensional texture space corresponding to the object.
5. (previously presented) A method as recited in claim 1, wherein the selecting further comprises converting a selected two dimensional screen coordinate into a three dimensional world coordinate.
6. (previously presented) A method as recited in claim 5, wherein the selecting further comprises identifying an intersection point by intersecting a vector comprising the three dimensional world coordinate and a viewing direction, and the object.

7. (previously presented) A method as recited in claim 6, wherein the painting further comprises:

computing a tangent plane by computing a normal vector at the intersection point; and
projecting the brush on the three dimensional surface of the selected area using the tangent plane.

8. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space, the selecting comprising:

converting a selected two dimensional screen coordinate into a three dimensional world coordinate; and

identifying an intersection point by intersecting a vector comprising the three dimensional world coordinate and a viewing direction;

painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface;

computing a tangent plane by computing a normal vector at the intersection point; and
projecting the brush on the three dimensional surface of the selected area using the tangent plane, and

wherein the normal vector comprises a smooth geometrical normal field depending on the polygons affected by the brush.

9. (previously presented) A method as recited in claim 1, wherein the painting further comprises:

computing a tangent plane by computing a normal vector at an intersection point where the brush is applied; and

projecting the brush on the surface of the selected area using the tangent plane.

10. (previously presented) A method as recited in claim 9, wherein the normal vector comprises an interpolated normal vector.

11. (previously presented) A method as recited in claim 1, wherein the brush is two dimensional.

12. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space; and
painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein the brush is volumetric.
13. (previously presented) A method as recited in claim 12, wherein the brush is cylindrical with a defined depth.
14. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space; and
painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein an intensity of the brush varies based on a normal vector of the geometry affected by the brush on respective portions of the surface.
15. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space; and
painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein the painting stops beyond a portion of the surface with a normal vector which varies more than a predetermined angle from an intersection point normal.
16. (previously presented) A method as recited in claim 15, wherein the predetermined angle is 90 degrees.
17. (previously presented) A method, comprising:

selecting an area of a displayed parametric object living in three dimensional or higher space; and

painting a brush texture map of a brush directly onto a texture map of a surface of the area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein the painting stops beyond a portion of the surface when a distance from the brush to the portion of the surface is greater than a predetermined threshold.

18. (previously presented) A method as recited in claim 1, wherein before the painting, the brush is rotated in a brush stroke direction.

19. (previously presented) A method as recited in claim 1, wherein before the painting, a brush resolution for the brush is determined and applied.

20. (withdrawn) A method for processing overscanning, comprising:

starting with a first grid comprising a plurality of first pixels, the first pixels each comprising background and non background pixels;

creating a subsequent grid, smaller than the first grid, the subsequent grid comprising a plurality of subsequent pixels each corresponding to a plurality of first pixels, each subsequent pixel determined by averaging the subsequent pixel's corresponding first pixels which are non background pixels; and

assigning first pixels in the first grid which are background pixels to a corresponding determined subsequent pixel.

21. (withdrawn) A method as recited in claim 20, wherein if the subsequent grid comprises a background pixel, then the creating operation is repeated creating a new subsequent grid(s) until the new subsequent grid does not contain a background pixel, and then the assigning is performed iteratively in reverse for each subsequent grid.

22. (previously presented) A method of implementing an effect brush, comprising:
selecting a selected area of a displayed parametric object living in three dimensional or higher space; and

reverse projecting texture from a surface of the selected area onto a temporary brush texture map of a brush, processing the temporary brush texture map using a selected process,

and projecting the temporary brush texture directly onto a texture map of the surface of the selected area of the displayed parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

23. (previously presented) A method as recited in claim 22, wherein the selected process uses a particular filter.

24. (previously presented) A method as recited in claim 22, wherein the selected process uses a particular brush.

25. (previously presented) A method as recited in claim 24, wherein the particular brush is selected based on a determination of a minimized brush resolution per target texture map affected by the brush texture map.

26. (withdrawn) A method for changing a brush resolution, comprising:
comparing a current brush resolution of a current brush with a texture resolution; and
replacing, if the current brush resolution does not meet a predetermined criteria for painting on the texture resolution, the current brush with a new brush having a new resolution.

27. (withdrawn) A method as recited in claim 26, wherein the predetermined criteria comprises whether the current brush resolution is greater or equal to the texture resolution, and if not, then the new resolution is selected to match the texture resolution.

28. (previously presented) A method of painting on a parametric object living in three dimensional or higher space, comprising:

determining a point on a surface of the object in the three dimensional or higher space where paint is to be applied;

producing a brush texture map for a brush for the point; and

applying the brush texture map directly to a texture map of a surface of the object at the point on a surface of the object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

29. (previously presented) A method of painting on a parametric object living in three dimensional or higher space, comprising:

determining a point on a surface of the object in the three dimensional or higher space where paint is to be applied;

producing a brush texture map for a brush for the point; and

applying the brush texture map directly to a texture map of a surface of the object at the point on a surface of the object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and where in the producing comprises:

determining a normal to the surface at the point;

determining a radius and a depth of the brush in a plane tangent to the surface at the point; and

wherein the applying comprises:

bringing the brush and the surface into coincidence along the normal;

determining portions of the object intersected by the brush using the depth and the radius;

applying paint to corresponding portions of object texture in texture space; and

applying the texture to the object.

30. (previously presented) A method as recited in claim 29, wherein the normal is an interpolated normal.

31. (previously presented) A method of painting on a parametric object living in three dimensional or higher space, comprising:

defining a series of points on the parameterized object representing a stroke;

positioning and orienting a space brush texture map stamp for each point in the series of points in a stroke-space dependent manner; and

directly painting the stroke into an object texture as a collection of texture modifications using the stamp for each point on the parameterized object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

32. (previously presented) A method as recited in claim 1, further comprising compiling images produced by the painting into a movie.

33. (previously presented) A movie made incorporating images created by using the following process:

selecting an area of a displayed parametric object living in three dimensional or higher space; and

painting a brush texture map directly onto a texture map of a surface of the area of the parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

34. (previously presented) A computer readable storage controlling a computer by allowing a user to select an area of a displayed parametric object living in three dimensional or higher space; and

painting a brush texture map directly onto a texture map of a surface of the area of the parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

35. (previously presented) An apparatus, comprising:
a selecting unit selecting an area of a displayed parametric object living in three dimensional or higher space; and

a painting unit painting a brush texture map directly onto a texture map of a surface of the area of the parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein a parameterization of the object is discontinuous creating texture seams.

36. (previously presented) A method, comprising:
selecting an area of a displayed parametric object living in three dimensional or higher space;

painting a brush texture map directly onto a texture map of a surface of the area of the parametric object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface;

converting a selected two dimensional screen coordinate into a three dimensional world coordinate;

identifying an intersection point by intersecting a vector comprising the three dimensional world coordinate and a viewing direction, and the object;

computing a tangent plane by computing a normal vector at the intersection point; and

projecting the brush on the three dimensional surface of the selected area using the tangent plane,

wherein the painting is performed view independently,

wherein the painting first aligns the brush to a normal vector of the surface,

wherein the painting is performed without first painting the brush on a two dimensional texture space corresponding to the object,

wherein the normal vector comprises an interpolated normal vector,

wherein an intensity of portions of a brush painting varies based on a normal vector of respective portions of the surface,

wherein the painting stops beyond a portion of the surface with a normal vector which varies more than a predetermined angle from an intersection point normal,

wherein the painting stops beyond a portion of the surface when a distance from the brush to the portion of the surface is greater than a predetermined threshold.

37. (previously presented) A method, comprising:

selecting an area of a displayed parametric object in a three dimensional space;

determining a brush based on an appropriate brush resolution; and

painting a brush texture map directly onto a texture map of a surface of the area of the parametric object in the three dimensional space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

38. (previously presented) A method, comprising:

selecting an area of a displayed parametric object defined in three dimensions; and

painting a brush texture map directly onto a texture map of a surface of the area of the object defined in the three dimensions based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and

wherein a parameterization of the object is discontinuous creating texture seams.

39. (previously presented) A method, comprising:
selecting a displayed parametric object defined in three-dimensional space; and
painting a brush texture map directly in three-dimensional space onto a texture map of a surface of the object in the three-dimensional space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein a parameterization of the object is discontinuous creating texture seams.
40. (previously presented) A method, comprising:
selecting an object in three dimensional or higher space; and
painting a brush texture map directly onto a texture map of a surface of the object in the three dimensional or higher space based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein a parameterization of the object is discontinuous creating texture seams.
41. (previously presented) A method, comprising:
selecting an object in three dimensional or higher space; and
painting a brush texture map directly onto a texture map of a surface of the object in the three dimensional or higher space responsive to a tangent plane based on brush orientations that minimize a distortion of a painted texture when displayed on the surface, and
wherein a parameterization of the object is discontinuous creating texture seams.